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Technological Trash: Should We Regulate the Disposal of Cathode Ray Tubes in Waste Facilities?

Kenneth Clay Ratley
University of Kentucky

TECHNOLOGICAL TRASH: SHOULD WE REGULATE THE DISPOSAL OF CATHODE RAY TUBES IN WASTE FACILITIES?

KENNETH CLAY RATLEY*

I. INTRODUCTION

I am I plus my surroundings and if I do not preserve the latter, I do not preserve myself.[1]

By the year 2004, it is estimated that 315,000,000 computers in the United States will become obsolete.[2] Aside from the logistical question of where the bulk of these outdated electronics can be discarded, there are grave concerns over what the disposal of these and other electronic devices will have on the environment.[3] The major environmental concern revolves around TVs and computer monitors commonly known as Cathode Ray Tubes (CRTs).[4]

These CRTs, which emit accelerated electrons onto a phosphorescent screen,[5] are encased in lead to prevent the viewers from being exposed to radiation.[6] Since it is estimated that, "[t]he average CRT contains five to eight pounds of lead,"[7] the concern for their disposal in solid waste facilities across the nation is obvious. So, the question left to us is whether or not we should embrace the electronic graveyards or fight to recycle and reuse these once enamored devices.

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*Production Editor, 2000-2001, JOURNAL OF NATURAL RESOURCES & ENVIRONMENTAL LAW. B.A., Georgetown College, 1998; J.D. 2001,University of Kentucky College of Law.

[1]JOSÉ ORTEGA Y GASSET, MEDITATIONS ON QUIXOTE, "To the Reader" (1914).

[2]*Old Computers Never Die: They Leak Chemicals Rejected Even by Goodwill, Electronic Discards Are No Throwaway Matter*, THE WALL STREET JOURNAL, May 8, 2000, at C19H. *See also Report Card Shows Whose Computers Byte the Dust*, ENVIRONMENTAL NEWS SERVICE, Dec. 21, 1999.

[3]National concern over the disposal of outdated electronic devices prompted the Environmental Protection Agency (EPA) to conduct a scaled test of potential environmental benefits from collecting and recycling electronic units. *See* Analysis of Five Community Consumer/Residential Collections; End-Of-Life Electronic and Electrical Equipment, EPA Common Sense Initiative: Computer and Electronic Sector EPA-901-R-98-003 (1999).

[4]Hereinafter CRTs.

[5]*See* THE AMERICAN HERITAGE DICTIONARY (3d. ed. 1992).

[6]As the CRTs are being manufactured, lead is combined with the glass of the CRT to form a protective layer around the CRT to prevent electron emissions and potential radiation problems.

[7]*Massachusetts DEP Bans Disposal of "Techno-Junk"--Announces New Program That Makes it Easier to Recycle TVs, Computer Monitors*, <http://www.state.ma.us/dep/recycle>, Mar. 31, 2000.

This Note explores whether or not we should regulate the disposal of CRTs in both solid and hazardous waste facilities. Since there are potential environmental concerns over the disposal of CRTs, we must first determine if there are any regulations that govern the disposal of these devices. Waste materials are generally categorized as either solid waste or the more potentially dangerous subcategory of hazardous waste. This Note will first examine if CRTs fall in the first category of solid waste, then look at whether they should be further categorized as hazardous waste. Following this analysis, the Note will discuss the two prevalent methods for disposing CRTs and which proposal is best at curing the potential environmental harms suggested by those who support banning CRTs in waste facilities.

Part II provides an introduction to the Resource Conservation and Recovery Act (RCRA)[8] and sets forth the initial requirements for determining what is solid waste. Since RCRA is the federal regulatory device for the disposal of certain types of solid waste, it is essential to determine whether or not CRTs fit within this statute. The statutory definition of solid waste under RCRA and recent case law are the main focus of this section and they conclude that CRTs are solid waste.

Part III of this Note explores whether CRTs are in fact hazardous waste under RCRA. The focus of this analysis is the lead encased in the CRT and whether their disposal creates a risk of the release of this toxin into the ground after they have been placed in the solid and/or hazardous waste facilities. Part III notes that the unique nature of CRTs makes this question difficult because the lead is combined with the glass in an arguably safe composition. However, this question is crucial because if they are categorized as hazardous waste under RCRA, disposal of CRTs is subject to RCRA's stringent regulatory requirements. RCRA regulates hazardous materials from their generation to final disposal, so we must also identify the actors that would be regulated under the EPA's approach.

Once it is concluded that CRTs can be deemed solid waste under RCRA, we must explore the first model that attempts to regulate their disposal. Part IV is a discussion of Massachusetts' recent ban of CRTs and their ability to incorporate a workable infrastructure in their Department of Environmental Protection (DEP) to handle the growing concerns of the disposal of outdated technological devices.[9] This approach seeks to regulate CRTs based on the assumption that they are only solid waste, rather than

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[8] 42 U.S.C.A. §§ 6901-6992(k) (2000) [Hereinafter "RCRA"].

[9] Since Massachusetts is the first state to successfully adopt a ban on the disposal of CRT's in landfill facilities, it provides an excellent blueprint for both other states and the federal government to use.

hazardous waste. While this regulation is in the form of a state ban, it may have implications on the use of RCRA to effectuate a national standard.

Part V of this Note will discuss the second model available for regulating the disposal of CRTs. This part will explore the Environmental Protection Agency's proposal for banning CRTs in waste facilities. This proposal differs from the first model by focusing on revising parts of RCRA as opposed to establishing state regulations. This Glass-to-Glass recycling proposal comes after extensive studies in five communities over the effectiveness of recycling end-of-life electronics.[10]

Part VI will also examine the opposition of the electronics industry to the recycling proposal. Implicit in the second model is the assumption that CRTs are, in fact, hazardous waste and that their disposal will wreak havoc on the environment. Lastly, this section will determine the overall effectiveness of instituting a national ban on the disposal of CRTs and whether or not it can be adequately enforced.

Finally, Part VII concludes with the Author's comments and predictions as to whether the banning of CRTs will cure the predicted environmental evils on our horizon. Part VII will also discuss available alternatives other than the two models articulated in this Note. For example, the questionable effectiveness of either model forces us to consider whether a deposit and refund approach would be a better method to encourage consumers to join in when they dispose of their CRTs. The conclusion will also discuss whether CRTs indeed pose the environmental hazards described in the Note. Lastly, it will explore the Author's opinion regarding the best mechanism for regulating the disposal of CRTs, which will result in a cleaner, safer, and healthier environment.

II. RCRA: PRELIMINARY CONSIDERATIONS

A. Historical Perspective

In 1976, the Resource Conservation and Recovery Act (RCRA) was enacted to provide "[f]ederal action through financial and technical assistance and leadership in the development, demonstration, and application of new and improved methods and processes to reduce the amount of waste and unsalvageable materials and to provide for proper and economical solid waste disposal practices."[11] The Supreme Court of the United States, in *Meghrig v.*

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[10] *See generally* Part IV of this Note.

[11] 42 U.S.C.A. § 6901(a)(4).

KFC Western, Inc.[12] stated that, "RCRA is a comprehensive environmental statute that governs the treatment, storage, and disposal of solid and hazardous waste."[13]

While Congress recognized in establishing RCRA that "the collection and disposal of solid waste should continue to be primarily the function of state, regional, and local agencies, the problems of waste disposal ... have become a matter national in scope and necessitate Federal action...."[14] Thus, the legislative foundations under which RCRA was established[15] over twenty years ago establish this program as a crucial device in the ongoing battle for environmental preservation. Due to the potentially huge impact on the environment that may be caused by the disposal of CRTs, RCRA is the first statute we must consider in determining whether CRTs are or should be federally regulated.

B. RCRA: Structuring a Statutory Framework for the Disposal of Solid and Hazardous Waste

RCRA essentially sets forth federal minimum regulatory guidelines under which solid and hazardous waste is to be disposed.[16] These guidelines provide procedures for the disposal and/or the reuse of hazardous waste. Along with setting these federal minimum standards, RCRA grants the EPA Administrator authority to review state solid waste management plans.[17] As discussed in the Introduction, RCRA's primary concern is over the handling of hazardous waste as opposed to non-hazardous solid waste. Thus, States are allowed to submit plans under which solid waste is to be disposed of in their state. Six months following the submission of these state plans, the EPA Administrator must either approve or disapprove the plan.[18]

While RCRA establishes only a federal minimum guideline as to the disposal of hazardous waste, its supervisory position via the EPA Administrator over state and privately run waste facilities make it a powerful tool when there are environmental concerns. RCRA's power, set forth under the governmental findings in 42 U.S.C. § 6901, is more focused on hazardous waste which is a subcategory of

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[12] 516 U.S. 479 (1996).

[13] *Id.* at 483 (citing Chicago v. Envtl. Defense Fund, 511 U.S. 328, 331-332 (1994)).

[14] 42 U.S.C.A. § 6901(a)(4).

[15] *See generally* § 6901.

[16] *See* 40 C.F.R. § 260-265 (2001).

[17] *See* 61C AM. JUR. 2D *Pollution Control* § 1139 (2000) (citing 42 U.S.C.A. § 6947(a)).

[18] *Id.*

solid waste.[19] So, the first step in determining if RCRA is applicable to a given environmental problem is to determine if the waste falls under the definition of solid waste as defined in 42 U.S.C. § 6903(27).[20]

RCRA defines solid waste as,

> [A]ny garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges....[21]

In determining whether CRTs[22] are in fact solid waste as defined by RCRA it is crucial that the CRTs fit the above-mentioned definition. However, we can also look at the federal regulations for further help in determining whether CRTs are solid waste under RCRA. Title 40 C.F.R. § 261.2 explores the definition of solid waste. The regulation provides that waste is "a discarded material ... which is: (i) [a]bandoned ... (ii) [r]ecycled ... or (iii) [c]onsidered inherently waste-like...."[23]

Subsection (b) of 40 C.F.R. § 261.2 continues, "[m]aterials are solid waste if they are abandoned by being: (1) [d]isposed of; or (2) [b]urned or incinerated; or (3) [a]ccumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being

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[19]*See generally* § 6901. While it is true that RCRA does have regulatory authority over sanitary landfills under 42 U.S.C. § 6944(a), their main focus is on the regulation of hazardous waste materials as opposed to the broader category of solid waste. Their reason for this is that they feel the States should have the regulatory power over solid waste, whereas their focus is on the more environmentally hazardous materials.

[20]Even though it may be apparent that CRTs necessarily fall within the category of solid waste, it is a necessary step in the process of determining RCRA's statutory power over the disposal of CRTs.

[21]42 U.S.C. § 6903(27).

[22]It is important to note that the CRTs focused on in this paper are computer monitors. However, CRTs do involve other electronic devices such as TVs. The reason for focusing the main scope of this Note on computer monitors is the fact that this device provides stark data as to the amount of monitors stored up across the United States and the fact that they will soon be discarded due to the nature of computers being quickly replaced. It is the Author's hope that the reader can more readily relate to the problem of overstocking outdated computer as opposed to various other outdated electronic devices.

[23]40 C.F.R. § 261.2(a)(2)(i-iii) (2001).

disposed of, burned, or incinerated."[24] Recent case law provides further help on whether CRTs are in fact solid waste under RCRA.

The question of what is solid waste under RCRA was recently addressed in *Association of Battery Recyclers, Inc. v. U.S. Environmental Protection Agency.*[25] In this case, the United States Court of Appeals for the District of Columbia Circuit sided with industrial manufacturers in determining that the EPA's reading of RCRA's definition of solid waste was too narrow and that an item must be truly discarded before it fits under RCRA.[26] The court in *Association of Battery Recyclers, Inc.* reaffirms the position that solid waste must be legitimately discarded before it falls under the definition set forth in RCRA.[27]

The court explained, "EPA's general regulation defining 'solid waste' begins by repeating a portion of the statutory definition: 'a solid waste is any discarded material.'[28] It then defines 'discarded materials' to mean 'any material which is Abandoned ... or Recycled.'"[29] The problem exposed in *Association of Battery Recyclers, Inc.* is that the "EPA's dividing line between 'waste' and nonwaste is the manner of storage."[30] Since, as the court noted, the length of time "the materials [were] stored is of no consequence according to the regulation;[31] [the materials] could be placed on the ground for only a few minutes before being put back into the production process, yet they would still be subject to RCRA if not stored in accordance with § 261.4(a)(17)."[32]

The importance of the EPA's interpretation of this regulation comes into play in the industrial manufacturing of products where there are secondary materials that are temporarily set aside. The court noted that while this question is important, "[i]t is not a new one."[33] In *American Mining Congress v. EPA*,[34] the court defined the word "discarded" based on the "ordinary, plain-English meaning [of] discarded."[35] They concluded the word discarded meant materials that were "disposed of, thrown away, or abandoned."[36] In applying the District of Columbia Circuit's definition to the disposal of CRTs,

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[24]40 C.F.R. § 261.2(b)
[25]208 F.3d 1047 (D.C. Cir. 2000).
[26]*See generally id.*
[27]*Id.* at 1051-52.
[28]*Id.* at 1050 (citing 40 C.F.R. § 261.2(a)(1)).
[29]*Id.* at 1050 (citing 40 C.F.R. § 261.2(a)(2)).
[30]*Id.* at 1051.
[31]208 F. 3d at 1051 (citing 63 Fed. Reg. 28556, 28582-82 (1998)).
[32]*Id.* at 1051.
[33]*Id.* (citing American Mining Congress v. EPA, 824 F.2d 1177 (D.C. Cir. 1987)).
[34]824 F.2d 1177 (D.C. Cir. 1987).
[35]*Id.* at 1184.
[36]*Id.*

we can see that RCRA does not come into play until the device is affirmatively discarded by the consumer.

In *American Petroleum Institute v. U.S. Environmental Protection Agency*[37] the same District Court stated that "[w]hether a material has been 'discarded,' subjecting it to RCRA regulation, is a question we have considered in four prior cases."[38] After discussing their previous holdings, the court reaffirmed its position, stating that the "[l]egal abandonment of property is premised on determining the intent to abandon, which requires an inquiry into facts and circumstances."[39] Thus, we must look at the intent of the actor to determine if the material has been discarded. Placing a CRT in a waste disposal unit necessarily meets this intent requirement, so under this description CRTs are solid waste subject to RCRA regulation.

For a more analogous discussion about the discarding of the lead in the CRTs, we can look at *United States v. ILCO, Inc.*,[40] which analyzed whether or not the lead elements in spent batteries were subject to RCRA regulation.[41] The court noted that, "[t]he sole question of law ... is whether lead parts, which have been reclaimed from spent car and truck batteries for recycling purposes, are exempt from regulation under RCRA."[42]

In this case, the Defendants argued that the lead elements in the batteries were not discarded, but rather reclaimed and available for reuse without being subject to RCRA.[43] Under this rationale, it could be argued that since CRTs have valuable lead components and have the potential for being reused, they are not "discarded" in the strict sense and thus not under the scope of RCRA. The court responded, "[w]ere we to rule [based on this theory], waste such as these batteries would arguably be exempt from regulation under RCRA merely because they are potentially recyclable."[44] Accordingly, the court concludes that "[p]reviously discarded solid waste, although it may at some point be recycled, nonetheless remains solid waste."[45]

A recent article discussing consumer habits stated, "[e]xperts estimate that as many as seventy five percent of the 61 million computers that became obsolete in the past three years are still being

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[37]American Petroleum Inst. v. U.S. Envtl. Prot. Agency, 216 F.3d 50 (D.C. Cir. 2000).

[38]*Id.* at 55.

[39]*Id.* at 57 (citing Baglin v. Cusenier Co., 221 U.S. 580 (1911)).

[40]United States v. Ilco, Inc., 996 F. 2d 1126 (11th Cir. 1993).

[41]*See generally id.*

[42]*Id.* at 1130.

[43]*Id.* at 1131.

[44]*Id.* at 1132.

[45]*Id.*

stored in warehouses, business and homes."[46] Based on the cases summarized, CRTs would be solid waste as defined by the statute and the initial regulatory requirement for RCRA's application is met. The question still remains whether the devices are hazardous waste and therefore under RCRA's more stringent regulatory requirements.

III. DEFINING HAZARDOUS WASTE UNDER RCRA

A. Just What Type of Waste is a CRT?

RCRA's objectives "are to promote the protection of health and the environment and to conserve valuable material and energy resources."[47] To accomplish this goal, RCRA seeks to "assur[e] that hazardous waste management practices are conducted in a manner which protects human health and the environment [by] requiring that hazardous waste be properly managed in the first instance thereby reducing the need for corrective action at a future date...."[48] It is crucial to note that RCRA's *hands on* approach toward hazardous waste is not the same as their approach toward solid waste that is not deemed to be hazardous to humans or the environment.[49]

In reference to solid waste, RCRA seeks to only "provid[e] technical and financial assistance to State and local governments and interstate agencies;"[50] whereas "RCRA specifically regulates the handling of hazardous waste and establishes guidelines for state solid waste management plans...."[51] Thus, whether or not a certain material is determined to be hazardous waste has broad implications as to RCRA's ability to establish a federal minimum requirement.

RCRA begins this process by defining hazardous waste as a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may:

> (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when

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[46] *Technological Wasteland Obsolete Computers Generate Trash Talk*, THE ORLANDO SENTINEL, Mar. 16, 2000, at C5.

[47] 42 U.S.C. § 6902(a).

[48] *Id.* at § 6902(a)(4)-(5).

[49] *See e.g.*, Mehrig v. KFC Western, Inc., 516 U.S. 479 (1996) (discussing RCRA's primary purpose as that of decreasing the production of hazardous waste).

[50] 42 U.S.C. § 6902(a)(1).

[51] 61C AM. JUR. 2D, *Pollution Control*, § 1134 (2000) (citing 42 U.S.C. §§ 6941-6949).

> improperly treated, stored, transported, or disposed of, or otherwise managed.[52]

Based on this criterion, the EPA is then required to "list those solid wastes which must be managed as hazardous wastes [under RCRA]."[53] Recent case law has struggled with adequately articulating what can be statutorily regulated as hazardous waste under RCRA. For example, in *American Petroleum Institute v. United States EPA*[54] the Court of Appeals for the D.C. Circuit invalidated the EPA's decision to exclude wastewater from petroleum refining from the hazardous waste list.[55]

This case is similar to determining whether CRTs are hazardous waste in that the lead encased in the devices are combined with non-hazardous materials much like the oil combined with the wastewater. Since the wastewater contained small percentages of oil, the court performed a *population risk analysis* and determined that there was sufficient cause to justify its listing under RCRA's hazardous waste management.[56] Determining whether a solid waste is defined as hazardous under RCRA is a fact-sensitive test and must be applied to the individual circumstances of the case.

B. Narrowing the Question: Are CRTs Innocuous to the Environment or Should We be Getting the Lead Out?

As stated in the Introduction of this Note, the major environmental impact of CRTs relates to the lead contained in the units.[57] Thus, the initial inquiry is whether lead is listed as a hazardous material under RCRA. Lead has been routinely recognized by the Court to be hazardous waste and therefore subject to regulation under RCRA.[58] RCRA has two general mechanisms for determining whether or not a material is hazardous waste.

First, RCRA sets forth a list of those materials that are deemed hazardous to the environment. Next, RCRA provides characteristics that are inherent in other hazardous materials that do not necessary contain the specific listed toxins. From this,

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[52]42 U.S.C. §6903(5)(A)-(B). Note that 40 C.F.R. § 261.10 sets forth further criteria for this analysis.

[53]61C AM. JUR. 2D, *Pollution Control*, § 1152 (2000) (citing 42 U.S.C. § 6921; 40 C.F.R. Part 261).

[54]216 F. 3d 50 (2000).

[55]*See generally id.*

[56]*Id.* at, 59.

[57]*See supra* note 7.

[58]Roger P. Freeman, Annotation, *What Constitutes "Hazardous Waste" Subject to Regulation Under Resource Conservation and Recovery Act (42 U.S.C.A. §§ 6901 Et Seq.)?*, 135 A.L.R. FED. 197, §10 (1999).

questionable materials are analyzed to see if they contain either the listed toxins or exhibit characteristics that RCRA sets forth. If the materials have a set percentage of a listed toxin, or match the description of hazardous waste, they are subject to RCRA's stringent scrutiny.

For example, in *Connecticut Coastal Fishermen's Ass'n v. Remington Arms Co.*[59] the court noted "lead shot generated by a gun club which was scattered over the land and waters surrounding the club which also fed fish and shorebirds was a hazardous waste for purposes of RCRA."[60] However, this example is easier than the question of CRTs because the lead in the monitors is combined with several other products. While it is true that a "[c]ombination of listed hazardous wastes and other materials can render the entire mixture hazardous,"[61] the EPA has yet to address the question of whether CRTs are hazardous materials.

The Electronics Industries Alliance ("EIA"), an opponent to the banning of CRTs in solid and hazardous waste facilities, stated that "the unwarranted, counterproductive classification of some discarded CRTs as hazardous waste"[62] is the first step towards federalizing a disposal ban on all CRTs. Their fear emanates from any proposal that would characterize all CRTs as hazardous waste under RCRA because this would result in increased recycling measures which, under the CSI's approach, would be enforced against the industrial actors.

EIA refutes the assumption that CRTs are environmentally hazardous by stating that, "unlike other uses of lead that may result in releases of lead to the environment, the lead in CRTs is bound in a chemical matrix within the glass."[63] The argument is that since the hazardous material (i.e. lead) is combined with the glass in the CRT, there is little if any chance of environmental contamination in the landfills.[64] If this statement were true, there would be no need for either banning CRTs from solid waste facilities or treating these devices before their disposal at hazardous facilities.

EIA relies on the fact that RCRA has been unsuccessful in placing an across-the-board limit on the percentage of lead that is allowable in a solid waste before it is deemed hazardous. For example, in *United States v. Ottati & Goss Inc.*[65] the court "granted a motion to dismiss [because] the defendant did not cause or contribute

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[59]989 F.2d 1305 (Conn. 1993).
[60]Freeman, *supra* note 58, at § 10.
[61]*Id.* § 2(b).
[62]64 Fed. Reg. 9110 (Feb. 24, 1999).
[63]*Id.*
[64]*See generally id.*
[65]22 E.R.C. 1737 (D.C. N.H. 1984).

to cause the disposal of any wastes that exceeded the thresholds established by the EPA for hazardous waste."[66] Since RCRA has not established what percentage of toxins in a solid waste makes it rise to the level of hazardous waste, the argument is that because lead constitutes a small amount of materials in the CRT, they should not be deemed hazardous materials.

The defendant in *Ottati*, licensed to transport chemical waste,[67] admitted to dumping "about 80 drums of diatomaceous earth[68] at the site."[69] The special compound was used as a filtration device at a company's water treatment plant.[70] Even though the waste had a host of toxic chemicals,[71] including lead, mixed with the compound, the court found that the waste did not rise to the level of hazardous waste as defined by the EPA.[72] Since there were only minute levels of toxicity present in the material and the risk of leakage was low, the material was deemed proper for disposal in solid waste facilities.[73]

Similarly, EIA notes that the low levels of lead in the CRTs combined with the small chance of the lead leaching into the grounds means that "there is no sound environmental or health reason to classify certain CRTs as hazardous waste."[74] They continue, "[e]ven if small amounts of lead were to leach from a CRT, there is little prospect for human exposure or environmental injury. Studies have demonstrated ... that lead is not transported through soil to any significant degree."[75]

In support of this statement, EIA focuses on the fact that the Toxic Characteristic Leaching Procedure,[76] which measures the amount of toxic chemical leaching from waste materials, is an inaccurate device to measure the amount of toxins that leach from CRTs.[77] This rejection of the TCLP test suggests that this

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[66]William B. Johnson, Annotation, *Liability Under § 7003 of Resource Conservation and Recovery Act (42 U.S.C.A. § 6973) Pertaining to Imminent Hazards from Solid or Hazardous Waste*, 115 A.L.R. FED. 491, § 16(b) (1996).

[67]*Id.*

[68]Diatomaceous earth is a "light-colored porous rock composed of the shells of diatoms." *See* THE AMERICAN HERITAGE DICTIONARY (3d. ed. 1992). Diatoms are "single-celled, microscopic plant[s] that secrete and [are] enclosed by an often intricate, round-to-elongated silica shell." *Id.*

[69]*Id.*

[70]Johnson, *supra* note 119, at § 16(b).

[71]Tests ran on the diatomaceous earth concluded that the following metals were present: "silica, iron, aluminum, copper, manganese, tin, chrome, lead, nickel, calcium, silver, zinc, boron, sodium, titanium, cadmium, magnesium, gold, vanadium, selenium, mercury, and arsenic." *Id.*

[72]*Id.*

[73]*Id.*

[74]64 Fed. Reg. 9110 (Feb. 24, 1999).

[75]*Id.*

[76]Hereinafter TCLP.

[77]64 Fed. Reg. 9110 (Feb. 24, 1999).

characteristics test would be met and there would be sufficient leaching of lead to classify CRTs as hazardous materials. However, the problem is that the EPA has not authorized the use of the TCLP test on CRTs, so the effectiveness of the test has not been determined. Lastly, EIA looked at the broad use of CRTs in our society and concluded that since "[t]hese items pose no risk to the environment when functioning in the home or office, [then] they present no risk when [they are] no longer needed by the user."[78]

C. Refuting EIA's Assumption that CRTs are not Hazardous Waste Under RCRA

EIA's statements and assumptions are necessarily suspect because they represent an industry that seeks to avoid additional environmental restraints, which, in turn, would increase the price of production for electronic devices.[79] However, the fact that these statements by EIA are being made suggests that CRTs need to be conclusively defined as being either hazardous waste or merely solid waste under RCRA.

In Part IV of this Note, the first step suggested by the EPA CSI's Council was to set new standards under which CRT glass is to be regulated by RCRA.[80] It must be emphasized that before RCRA can change the regulations of a waste material such as CRT glass, it must first fall within the parameters of the act. If we follow EIA's assumption that CRTs are by definition *not* hazardous waste, then RCRA's ability to adjust the standards under which CRTs can be regulated is necessarily limited.[81] Thus, the approach promoted by the EPA begins with the assumption that CRTs are hazardous materials, then sets forth specific regulations under which recycling measures are to be followed.[82]

But with this said, are we any closer to the ultimate question of whether CRTs are deemed hazardous waste under RCRA? If the answer is no, then we need to focus on the following three concerns which will set forth the problem of CRT disposal across the nation in a realistic fashion. First, we can look at the underlying principles of RCRA for help in determining whether or not CRTs constitute

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[78] *Id.*

[79] *See generally id.*

[80] Analysis of Five Community Consumer/Residential Collections; End-Of-Life Electronic and Electrical Equipment, EPA Common Sense Initiative: Computer and Electronic Sector EPA-901-R-98-003, 76 (1999).

[81] *See e.g.*, 64 Fed. Reg. 9110 (Feb. 24, 1999).

[82] *See generally* Analysis of Five Community Consumer/Residential Collections; End-Of-Life Electronic and Electrical Equipment, EPA Common Sense Initiative: Computer and Electronic Sector EPA-901-R-98-003, 76 (1999).

hazardous waste.[83] RCRA provides that, "the Congress finds with respect to the environment and health, that ... disposal of solid waste and hazardous waste in or on the land without careful planning and management can present a danger to human health and the environment."[84] While this statement does not provide differentiating characteristics between solid and hazardous waste, it does expressly remind the states and citizenry that proper planning is crucial before we begin discarding millions of tons of products without fully analyzing the environmental impact these items will have on the earth.[85]

Along with this general concern, RCRA adds "the placement of inadequate controls on hazardous waste management will result in substantial risks to human health and the environment [and] if hazardous waste management is improperly performed in the first instance, corrective action is likely to be expensive, complex, and time consuming."[86] With this as the backdrop to the huge impact hazardous waste potentially has on the environment, we are strongly warned to proceed with caution in our decisions on what should be discarded in solid or hazardous waste facilities.

Second, as stated in the Introduction of this Note, around 315,000,000 computers will become obsolete within the next four years.[87] The ramifications of this fact become apparent when we acknowledge that if these computers are placed in solid waste facilities, and the average CRT contains five to eight pounds of lead,[88] we will be placing at least 1,575,000,000 pounds of potentially toxic lead into the ground. Even assuming that the lead is bound into the CRT glass and does not leak into the ground, proponents for the recycling of CRTs note that the disposal of precious metals is wasteful and results in the depletion of available raw materials on earth. This statement is in line with additional findings by Congress that "with respect to materials ... millions of tons of recoverable material which could be used are needlessly buried each year [and] the recovery and conservation of such materials can reduce the dependence of the United States on foreign resources and reduce the deficit in its balance of payments."[89]

Third, we must analyze whether EIA's assumption that intact CRTs, since they are used in household products, do not carry the

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[83] *See generally* 42 U.S.C. § 6901.
[84] *Id.* §6901(b)(2).
[85] *See generally id.*
[86] *Id.* §6901(b)(5)-(6).
[87] *See supra* note 2.
[88] *See supra* note 7.
[89] 42 U.S.C. § 6901(c)(1)-(2).

risk of leaching in solid waste facilities.[90] Conclusions that intact CRTs pose no hazardous effects on the environment, and thus should be discarded into solid waste facilities, ignore the obvious fact that the integrity of the CRTs glass will be compromised when they are crushed and placed into solid waste facilities.[91] For example, the Massachusetts DEP, at the very least, acknowledged the environmental concerns when CRTs are crushed and incinerated, as some solid waste facilities do to decrease the bulk of the discarded trash.[92] They stated that, "CRTs contain lead, which can contaminate incinerator ash and prevent its beneficial reuse in asphalt and other products."[93] This recognition that CRTs, when crushed or mutilated, pose a different risk than when they are intact is the state at which we must analyze whether or not CRTs are in fact hazardous materials.

These practical considerations are crucial in determining the status of CRTs under RCRA because the current treatment of this debate by the EPA means that as of right now the only certainty is that there is uncertainty.[94] With these three prudential concerns in mind, the final and arguably best way to determine if CRTs are in fact hazardous materials is to look at 40 C.F.R. § 261.10 to determine what criteria has been previously set forth in identifying the characteristics of hazardous waste.[95] 40 C.F.R. § 261.10 states,
The Administrator shall identify and define a characteristic of hazardous waste . . . upon determining that:

> A solid waste that exhibits the characteristics may:
> (i) Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or
> (ii) Pose a substantial present or potential hazard to human health or the environment when it is improperly treated, stored, transported, disposed of or otherwise managed; and

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[90] 64 Fed. Reg. 9110 (Feb. 24, 1999).

[91] EIA's assertion that these intact CRTs, which didn't infect or hurt us while in our homes, will not do so when we discard them clearly suggests that they are not seeing the whole picture. The concerns enunciated by the CSI Council is that when the lead in these CRTs are crushed and placed into solid waste facilities, there becomes a distinct possibility that the lead and other toxins can leach into the soil and affect drinking water. Regardless of the potential hazards of this leaching to occur, it must be acknowledged that this represents a more complete environmental picture than the postulations by the EIA.

[92] *See* Cathode Ray Tube (CRT) Reuse and Recycling, http://www.state.ma.us./dep/recycle/crt/crtq%26a.doc.

[93] *Id.*

[94] *See supra* note 46.

[95] *See* 40 C.F.R. § 261.10.

> The characteristics can be:
> (i) Measured by an available standardized test method which is reasonably within the capability of generators of solid waste or private sector laboratories that are available to serve generators of solid waste; or
> (ii) Reasonably detected by generators of solid waste through their knowledge of their waste.[96]

The characteristics provided in 40 C.F.R. § 261.10(a)(1) largely mimic the definition given under RCRA.[97] In this respect, it provides little if any help as to effectively determining the criteria that established hazardous materials. However, 40 C.F.R. § 261.10(a)(2) provides an interestingly practical consideration in determining what material is considered hazardous.[98] The regulation essentially says that in order to determine if a material constitutes hazardous material, the solid and hazardous waste facilities must have an available way of knowing whether the waste is hazardous. Basically, it is pointless to determine that a waste product is hazardous if the local and state owned operators are unable to differentiate between hazardous and non-hazardous materials. To require these operators to test and determine whether or not products are hazardous would be unduly burdensome.

However, this characteristic cuts in favor of allowing CRTs to be deemed hazardous material because they are easily distinguishable between other waste products and can be selected out and set aside. While this factor does not address the substantive questions as to whether or not CRTs are necessarily hazardous materials, it does suggest that CRTs pose less problems in being removed from the waste stream than several other waste products that cannot be easily distinguished between hazardous and non-hazardous waste.

In determining which of the two models for regulating the disposal of CRTs is the best, it is crucial that we decide whether or not CRTs are hazardous materials. The unique nature of CRTs makes this question difficult because RCRA currently provides no clear cut answer as to whether or not we should consider the fact that the toxins are being placed in the ground; or should take into consideration the current state of the compound (as in the case of CRTs, bound up with the glass).

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[96] *Id.*
[97] *See* 42 U.S.C. § 6903(5)(A)-(B).
[98] 40 C.F.R. § 261.10(a)(2).

Thus, we leave this section asking the same question as when we started: are CRTs hazardous waste under RCRA? To definitively answer this question, we must combine the prudential concerns discussed above with the scientific impact of the leaching of lead in solid waste facilities from methods such as the TCLP. This is the first step that Congress must address before comprehensively banning CRTs under RCRA. The question here is not easy and the stakes for all are necessarily high, but concerns have reached a point to where we must ask the hard questions and find out what steps are needed for the preservation of our environment.

Now that we have explored the questions as to whether CRTs are solid or hazardous waste, we can look at the two prevailing models that regulate the disposal of CRTs in waste facilities. The first model, explored in Part III of this Note, regulates CRTs primarily through the actions of the States based on the assumption that the devices are solid waste. Part IV, the second model, is the EPA's proposal that we regulate CRTs on a national scale by amending RCRA. This second model's authority stems from the theory that CRTs fall in the more narrow category of hazardous materials.

IV. THE MASSACHUSETTS BAN

A. A Discussion of the First State to Ban CRTs in Solid Waste Facilities[99]

Effective April 1, 2000, the Massachusetts Department of Environmental Protection[100] placed a comprehensive ban on CRTs regarding their "disposal or incineration or transfer for disposal at a solid waste disposal facility."[101] This regulation was part of a comprehensive plan that was proposed and partially granted authorization by the EPA Administrator on October 12, 1999.[102] State hazardous waste programs are required to "maintain a . . . program that is equivalent to, consistent with, and no less stringent than the Federal program."[103]

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[99]It is important to note that MASS REGS. CODE tit. 310, § 19.017 (2000), which is the focus of this section, deals with the ban of CRTs in solid waste facilities alone. The state regulation does not discuss the disposal or reuse procedures available in hazardous waste facilities in the state, even though the hazardous nature of the CRTs are the primary reason for its ban.

[100]Hereinafter DEP.

[101]MASS. REGS. CODE tit. 310, § 19.017(3) (2000).

[102]*Massachusetts: Final Authorization of State Hazardous Waste Management Program* 64 F.R. 55,153 (1999).

[103]*Id.* (citing § 6926(b)).

Thus, the EPA will allow a state program to set regulations that are more stringent than RCRA. This is because "RCRA does not impliedly or expressly pre-empt state and local hazardous waste regulations that are more restrictive than the federal standards under RCRA."[104] Since the EPA has not formally recognized a ban on the disposal of CRTs in solid and hazardous waste facilities, they expressly reserved comment on Massachusetts' ban.[105] Specifically, the EPA stated that they "defer [any] action relating to CRTs; however, the agency plans to address this issue in a future Federal Register document."[106]

To date, there has been no further action taken by the EPA under the authority of RCRA in recognizing this ban on CRTs. Massachusetts' ban on CRTs is not only the law, but is a guideline to others for the progression of environmental protection throughout the nation. The Massachusetts DEP's decision to forge ahead is best articulated in a prepared statement by the agency, which provides:

> CRTs and other obsolete electronics account for a significant and rapidly increasing share of solid waste generated in Massachusetts. From current estimates of 75,000 tons per year, the volume of this waste is expected to reach as much as 300,000 tons annually by 2005. The already increasing rates of discard will be exacerbated as such emerging technologies as flat panel screens, high definition televisions (HDTV) and digital video disc (DVD) players become the standard.[107]

With these concerns in mind, the Massachusetts DEP not only places solid waste facilities on notice about the ban on CRT disposals, but also requires, "all persons [to] segregate CRTs from the solid waste stream."[108] This fervent concern over the disposal of CRTs by the Massachusetts DEP is questioned by many. However, the DEP, along with the EPA's Common Sense Initiative,[109] have reason for being worried.[110]

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[104]61C AM. JUR. 2D *Pollution Control* § 1140 (2000) (citing Blue Circle Cement, Inc. v. Board of County Com'rs of County of Rogers, 27 F.3d 1499, (10th Cir. 1994)).

[105]*Id.* Note that the EPA failed to authorize the specific CRT provision proposed. This analysis behind the EPA's decision to reserve authorization will be discussed in Part III-B of this Note.

[106]*Id.*

[107]*See supra* note 92.

[108]MASS. REGS. CODE tit. 310, § 19.017(3)(c).

[109]Hereinafter CSI.

[110]*See generally* Analysis of Five Community Consumer/Residential Collections; End-Of-Life Electronic and Electrical Equipment, EPA Common Sense Initiative: Computer and Electronic Sector EPA-901-R-98-003 (1999).

In April of 1999, the EPA Common Sense Initiative-Computer and Electronic Sector published a report entitled *Analysis of Five Community Consumer/Residential Collections End-Of-Life Electronic and Electrical Equipment.*[111] The scope of this project was to, "evaluat[e] pilots focusing on consumer and community Electronic Product Recovery and Recycling (EPR2) collections of End-of-Life Electronics and Electrical (EEE) waste from municipal solid waste stream."[112]

The CSI chose five locations across the nation to conduct this pilot project which involved the collection and recycling of EEE waste, which primarily involved CRTs from old TVs and computer monitors.[113] The five locations chosen were: (1) Binghamton, NY & Somerville, NJ, (2) Naperville & Wheaton, IL, (3) Hennepin County MN, (4) San Jose, CA, and (5) Union County, NJ.[114] The report stated that, "[t]he pilot was modeled after a typical one-day collection event for household hazardous waste held on a Saturday morning/afternoon."[115] Project comments provided that "the participating municipalities considered [the] collection programs to be successful...."[116]

While comparison between the success rate of the municipalities is difficult due to the different types of collection programs used in the pilots,[117] the Massachusetts DEP clearly considered the conclusions drawn in the report as pertaining to CRT recycling.[118] Section 4.2.2 of the *Analysis* stated that "[t]he commodity that predominated in most of the five collection programs is the CRT."[119] The major debate over CRTs involves disposal versus recycling costs of the solid waste.[120]

Thus, the *Analysis* stated that, "[o]ne optimum demanufacturing option, at least in terms of net economics, may be the recycling of the CRT into glass. Demanufacturers who recycled CRTs received some revenue for the glass that they generated."[121] The major problem with this option is that more than 200 chemicals are contained in the CRTs.[122]

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[111] *Id.*
[112] *Id.* at 6.
[113] *Id.* at 2.
[114] *Id.* at 9.
[115] *Id.*
[116] Analysis of Five Community Consumer/Residential Collections; End-Of-Life Electronic and Electrical Equipment, EPA Common Sense Initiative: Computer and Electronic Sector EPA-901-R-98-012 (1999).
[117] *Id.* at 31.
[118] *Id.* at 40.
[119] *Id.*
[120] *Id.* at 72-75.
[121] *Id.*
[122] *See supra* note 110, at 72-75.

Regardless of the difficulties this problem presents, both the Massachusetts DEP and the EPA CSI recommend recycling CRTs. Specifically, the EPA CSI stated in their recommendation that:

> Based on in-depth work conducted by the CSI Computers and Electronics Sector Subcommittee, the CSI Council has determined that properly conducted Cathode Ray Tube (CRT) glass-to-glass recycling is a cleaner, cheaper, smarter approach to waste CRT management that should be increased. To facilitate accomplishing that goal, the CSI Council recommends that the U.S. Environmental Protection Agency:
>
> Revise the applicable Resource Conservation and Recovery Act (RCRA) hazardous waste management to facilitate CRT glass-to-glass recycling . . . Complete and implement this CRT rulemaking as soon as possible, and in the intervening period, take appropriate steps to realize the environmental benefits of glass-to-glass recycling.[123]

Massachusetts borrowed the general structure of these suggestions by enacting Title 310 of the Code of Massachusetts Regulations § 19.017 entitled *Waste Control.*[124] Under this regulation, the DEP "may restrict or prohibit the disposal, or transfer for disposal, of certain components of the solid waste stream when it determines that . . . the material presents a potential adverse impact to public health, safety or the environment . . .."[125]

The Massachusetts DEP's controversial step toward banning CRTs in April of 2000 required the agency to back up their decision with pertinent and practical reasons for the ban. The agency set forth four primary reasons for the enactment of Title 310 of the Code of Massachusetts Regulations § 19.017; they are as follows:

> 1. Continued disposal in landfills of bulky electronic components will unnecessarily accelerate the pace at which the state's few remaining landfills reach their capacity.

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[123] *Id.* at 76.
[124] MASS. REGS. CODE tit. 310, § 19.017 (2000).
[125] *Id.* at 19.017(1)(a)-(b).

> 2. Combustion of these items carries a potential public health risk. CRTs contain lead, which can contaminate incinerator ash and prevent its beneficial reuse in asphalt and other products.
> 3. To promote the recycling and reuse of lead, and leaded glass contained in the CRT, as well as the precious metals found in printed circuit boards, power supplies, and the like.
> 4. Recycling precious metals from electronics reduces the need for strip mining . . ..[126]

Along with these justifications, the DEP focused on the economic concerns of citizens who feared that efforts towards recycling CRTs would result in higher collection rates. The DEP retorted, "[f]or municipalities, the cost of CRT recycling has already fallen by 60% in two years. Initially, CRT recycling was very expensive. Through the DEP's infrastructure development plan, however, prices have continued to fall."[127] Due to the newness of the ban, the only true test as to its effectiveness and holistic improvement on the environment will be the one thing there never seems to be enough of, time.

Even though the Massachusetts ban borrows from the EPA's suggestion, the one stark difference between the two models is their determination as to whether CRTs are merely solid waste or hazardous waste. Recall that RCRA has the sole authority to regulate hazardous materials, including their treatment and disposal. If this is true, then the state of Massachusetts would not have the statutory authority to ban CRTs conclusively if these devices are hazardous waste under RCRA. The best exposition of this problem is provided in a recent Daily Environmental Report, wherein it states:

> [The EPA] enthusiastically support[s] the state's landfill ban . . .. However . . . [the] EPA had a problem with the state's proposal to regulate disposal of CRTs as solid waste only, and not as a hazardous waste. The federal agency was concerned that if the electronic devices were totally exempted from hazardous waste rules, there would be no recourse to go after "fly-by-night" recyclers who dumped CRTs by the side of the road.... Under a compromise agreement, EPA has agreed to provide interim authorization of the

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[126] *See supra* note 92.
[127] *Id.*

> Massachusetts disposal for three years, since the state's disposal program is close to the federal Universal Waste Program.... [It is also important] to remove the stigma of hazardous waste from CRTs to encourage recycling[128]

To allow Massachusetts this comprehensive ban on CRTs in their state, the EPA had to allow the state to characterize these devices as solid waste only, thus circumventing RCRA. The difficult question as to whether CRTs are hazardous waste under RCRA will be explored in Part IV of this Note. However, the next model to be examined assumes that CRTs are hazardous materials and subject to RCRA.

V. TAKING THE STEPS TOWARDS BANNING CRTS ON A NATIONAL LEVEL

A. Enacting the CSI's RCRA Recommendations

In 1994, "[t]he U.S. Environmental Protection Agency (EPA) established the Common Sense Initiative (CSI) as a formal advisory council under the Federal Advisory Council Act[129] to bring together government, industry, environmental, environmental justice, and labor representatives."[130] The Computers & Electronics Sector was a subcommittee created under the CSI to analyze and propose environmental solutions related to the effect of technology on the environment.[131]

Although the Computers & Electronic Sector concluded its work and recommendations on December 3, 1998,[132] their proposals to the EPA for revising RCRA are still the most recent articulation of what can be done to effectively ban CRTs in solid waste facilities.[133] After analyzing the extensive data established by this subcommittee as reflected in their report, *Analysis of Five Community Consumer/Residential Collections End-Of-Life Electronic and Electrical Equipment*, the CSI Council stated "that properly conducted Cathode Ray Tube (CRT) glass-to-glass recycling is a

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[128]Daily Environmental Reporter, 67 DEN A-12 (April 6, 2000).

[129]Formal Advisory Council Act.

[130]United States Environmental Protection Agency, Common Sense Initiative: CSI Computer & Electronics Sector, *at* <http://www.epa.gov/ooaujeag/csi/comp2.html>.

[131]*Id.*

[132]*Id.*

[133]*See also* 64 FR 65125, 65127 (November 22, 1999). This Unified Agenda of the EPA confirmed the need to enact the CSI's recommendations. The abstract provides, "[t]he recommendation involves minimizing RCRA requirements for glass-to-glass recycling while retaining appropriate controls to ensure protection of human health and the environment." *Id.*

cleaner, cheaper, smarter approach to waste CRT management that should be increased."[134]

B. Analyzing the CSI's CRT Glass-to-Glass Recycling Recommendation

The proposal by the CSI Council begins by recommending that the EPA "[a]dd to the Resource Conservation Recovery Act (RCRA) hazardous waste management regulations new standards specific to CRT glass-to-glass recycling which will apply in place of the standard RCRA hazardous waste requirements."[135] In essence, the EPA has received requests to adjust the regulations under which CRTs have been previously discarded. The crux of the proposal is the "exclusion from the definition of solid waste clarifying that processed CRT glass that is to be reused in CRT glass manufacturing is not a solid waste subject to the RCRA hazardous waste regulations."[136]

CSI's position is that once we explicitly exclude processed CRT glass from RCRA's definition of *solid waste*, the glass will no longer be required to be disposed of in solid and/or hazardous waste facilities.[137] For this point, CSI lists four reasons why processed CRT glass is salvageable above other forms of solid waste. First, they state that "the degree of processing the material has undergone is such that it requires little, if any, further processing."[138] Essentially they argue that the CRT glass is of such a completely manufactured nature that it would be counterproductive to discard the material. Second, "the material has economic value."[139] With a large component of the CRT being lead, a precious material, there is a

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[134]Analysis of Five Community Consumer/Residential Collections; End-Of-Life Electronic and Electrical Equipment, EPA Common Sense Initiative: Computer and Electronic Sector EPA-901-R-98-003, 76 (1999).

[135]*Id.* Note that the CSI Council's proposal centers around the recycling of CRT glass with the noticeable exclusion of the other numerous toxins in the monitor. While this may be the only practical alternative available, the question remains whether a complete CRT ban is needed.

[136]*Id.*

[137]The CSI's approach toward the banning of CRTs is curious to say the least. They are advocating that we affirmatively remove CRTs from the definition of solid waste, but then regulate them in a manner consistent with hazardous waste. For this approach to work, there must be clear and unambiguous language placed in RCRA that explains their decisions toward the regulation of CRTs. First, they must clarify what they mean by *excluding* CRTs from solid waste. It is clear that they do not mean that they don't want CRTs to no longer be regulated, but rather that these devices deserve special statutory handling. Next, it appears that RCRA must categorize CRTs as hazardous materials before they can have the stringent control that the CSI proposal suggests. Thus, language to that effect must be placed in the statute.

[138]Analysis of Five Community Consumer/Residential Collections; End-Of-Life Electronic and Electrical Equipment, EPA Common Sense Initiative: Computer and Electronic Sector EPA-901-R-98-003, 76 (1999).

[139]*Id.*

valid conclusion that these devices have worth. Third, "the material is like an analogous raw material."[140] While this point seems incongruous to their first reason, it does seem to suggest that the CRT glass is of such a complex configuration that to destroy it would require starting from scratch all over again. Fourth, "there is a guaranteed end market for the material."[141] There is ample support for this contention in that as long as the cathode ray continues to be the general standard by which images are projected on a monitor or screen, there will be a sufficient demand for that product.

The CSI is essentially attempting to carve out a niche under which CRTs will no longer be considered discarded material. If there are specific recycling and reuse methods in RCRA that require CRTs not to be treated as other solid waste, then these devices must be recycled. The difficulty with this approach is regulating the entities that normally dispose of the CRTs.

CSI concludes their proposal by listing three entities which will be regulated in their disposal of CRTs under RCRA.[142] Instead of proposing a strict standard on every citizen, the CSI opted to address the perceived bulk of discarded CRTs by regulating the individuals that would tend to dispose of these materials. This *middle-of-the-road* approach is both troubling and appealing at the same time. It is troubling in that regulation of private entities is not addressed in their proposal. However, it has advantages by targeting the major players in the disposal of CRTs.

The first of the regulated entities are termed *collectors*. This category involves "persons who collect/store whole TVs/monitors. Within this category, some requirement will apply only to large collectors . . .."[143] The regulation of this group is obviously focused on the industrial corporations rather than the individual computer owner. The second category is called *processors*. Processors are "persons who . . . intentionally break CRTs; manage intentionally broken CRT glass or cullet; or clean coatings ... from CRT glass."[144] The last regulated category *transporters*. As the name suggests, transporters are "persons who transport TVS/monitors, whole CRTs, broken CRT glass, or cullet."[145]

Basically, the goal is to establish provisions under which these entities will recycle the CRT glass that has been collected.

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[140] *Id.*

[141] *Id.*

[142] *Id.*

[143] *Id.*

[144] Analysis of Five Community Consumer/Residential Collections; End-Of-Life Electronic and Electrical Equipment, EPA Common Sense Initiative: Computer and Electronic Sector EPA-901-R-98-003, 76 (1999).

[145] *Id.*

Concern over the CRT glass is due to the fact that the potentially toxic lead is bound up in the glass. By regulating the CRT glass disposal, you necessarily regulate the disposal of the lead. The proposed recycling provisions include notification "to the agency implementing the hazardous waste regulations (EPA or the state)."[146] Following this notification, the entities will be provided with information regarding the marking, storage, shipping, and packing of CRTs.[147] Proponents of the CRT ban likely wonder why the CSI failed simply to recommend an all-out ban on CRTs in solid waste facilities. However, it's not hard to see the reason for their hesitation due to the large industrial concerns echoed by the Electronic Industries Alliance (EIA).

VI. OPPONENTS TO THE PROPOSAL: A LOOK INTO THE ELECTRONIC INDUSTRIES

The Electronic Industries Alliance (EIA)[148] purports to be "the oldest and largest trade association of the electronics industry, representing over 2,200 members involved in the design, manufacture and sale of electronic components, assemblies, products, and systems for consumer, commercial, industrial, military, and aerospace use."[149] The EIA takes issue with the ban on CRTs in solid and hazardous waste facilities.[150]

The EIA, like the EPA, decided to appoint the Environmental Issues Council,[151] which "serves as the representative body for environmental professionals from all sectors of the electron[i]cs industry to examine internal, federal, and state regulatory and legislative initiatives that affect the electronics industry."[152] This *watchdog* council acts as a legislative check on proposals such as the suggested banning of CRTs in solid and hazardous waste facilities.

As listed under the title of *EIC Priority Issues*, this group states its purpose is to "[t]rack [l]egislation in all states and regions on end-of-life product issues [and to] [a]ssist in [the] development of U.S. EPA Proposed CRT Regulation."[153] To get a glimpse of this groups motivation, we can analyze EIA's public comments

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[146] *Id.* at 79.

[147] *Id.* at 79-81.

[148] Hereinafter EIA.

[149] 64 Fed. Reg. 9110 (Feb. 24, 1999); *see also* <http://www.eia.org/GRD/EIC/MAcomm399.htm>.

[150] *Id.*

[151] Hereinafter EIC.

[152] Electronic Industries Alliance, *available at* <http://www.eia.org/government/eic/index.cfm>.

[153] *Id.*

concerning the EPA's authorization of Massachusetts' State Hazardous Waste Management Program.[154]

In an artfully drafted comment, EIA applauds the Massachusetts DEP for their efforts in recycling, but also expressed great consternation about preventing CRTs from being discarded.[155] EIA begins their comment by questioning the "legality of DEP's unconditional exemption for intact CRTs [and suggests that] [i]n the interim, EPA should work with DEP to lift the disposal ban until this matter is resolved in a satisfactory manner."[156]

EIA notes that, "[i]n the face of the counterproductive, burdensome federal regulatory scheme, DEP has designed a new approach that is intended to promote increased, more cost-effective recycling."[157] However, their fictitious appreciation of the DEPs across-the-board ban of CRT disposals is apparent when the cost of recycling is brought into the equation. The incremental increase in the cost of production of CRT tubes due to imposed recycling measures suggests that industries will be forced to pay higher prices for their production materials.

The CSI's CRT glass-to-glass recycling measures require, in short, that the CRT glass be "separated from non-glass components (e.g., TV/monitor plastic and metal components, implosion band, shadow mask, deflection yoke, electron gun, inner shield) and [be] cleaned to remove coatings . . .."[158] Regardless of the suggested decrease in recycling costs of CRTs, eventually the cost of recycling will hit the industries associated with EIA. Thus, EIA strongly rebukes any support given by the EPA through authorization of state hazardous waste management plans as the one proposed by Massachusetts' DEP.[159] EIA does, however, do more than throw a tantrum or hold their breath to get the EPA to question the DEP's disposal ban on CRT.

EIA's argument is that CRTs are not hazardous waste as defined under RCRA, and as such "there is no reason why they should be regulated as hazardous waste."[160] EIA contends that, before the EPA may impose a nationalized ban on CRT disposals,

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[154]64 Fed. Reg. 9110 (Feb. 24, 1999). On May 10, 1999, EIA submitted comments regarding Massachusetts' regulation regarding the ban on CRTs as later codified in MASS. REGS. CODE tit. 310, § 19.017 (2000).

[155]64 Fed. Reg. 9110 (Feb. 24, 1999).

[156]*Id.*

[157]*Id.*

[158]Analysis of Five Community Consumer/Residential Collections; End-Of-Life Electronic and Electrical Equipment, EPA Common Sense Initiative: Computer and Electronic Sector EPA-901-R-98-003, 76 fn.28, (1999).

[159]*See generally* 64 Fed. Reg. 9110 (Feb. 24, 1999).

[160]*Id.*

RCRA must be amended to include CRTs as hazardous waste under the statute.

The goal of this Note is to find the best mechanism for the regulating the disposal of CRTs. We have examined the two models offered for this approach: namely Massachusetts' State ban which regards CRTs as solid waste; and the EPA's proposal defining the devices as hazardous waste.[161] It must also be noted that the EPA showed concern over allowing Massachusetts the authority to regulate these devices as solely solid waste. If this is the approach to be taken, there will never be a federal minimum standard under which CRTs may be regulated because the regulation will be left entirely to each individual state. There are concerns over both of the prevailing models that regulate the disposal of CRTs. However, until there is statutory authority by either the States or RCRA to settle this dispute, we are left to ponder what to do with the growing pile of outdated CRTs across America.

VII. CONCLUSION

This Note has explored two models which are currently offered for regulating the disposal of CRTs. First, we looked at the Massachusetts ban on CRTs that was granted temporary authorization by the EPA and held these devices to be mere solid waste. The second model offered by the EPA regulated CRTs based on the fact that they are hazardous materials. In determining which mechanism is the best approach, I believe that we must focus on the problem on a national level.

With this being said, I advocate that if CRTs are to be regulated, regulation must proceed under some national plan established by RCRA. I say this for two reasons. First, it is apparent to me that CRTs constitute hazardous waste under RCRA. It is clear that the toxins combined in these devices are of such a level and danger the regulation must carry the weight and sanctioning power afforded to RCRA by Congress. Second, to leave this problem up to the states and grant temporary authorization, as the EPA did with Massachusetts, means that regulation of CRTs will vary from state to state and there will be no set standard.

The question we are left with, assuming regulation under RCRA, is *should* the government regulate these electronic devices and in effect force a mandatory ban on the disposal of these outdated

[161]Note that the EPA's proposal seeks to exclude the CRTs from the definition of solid waste under RCRA, and set forth specific guidelines for their disposal. However, for RCRA to have this power, the implied assumption is that CRTs are under the scope of RCRA and are hazardous waste.

units? Or should we share EIA's concerns over a federalization versus a state regulatory scheme with respect to CRTs that will arguably encroach on the market and eventually consumers of electronic products?

I am less sure about the answers to these questions because of three reasons: (1) the reactionary effect associated with deeming a product hazardous; (2) determining which actor to enforce these regulations against; and (3) the fact that there are other unexplored options available. First, when a product is determined to be hazardous under RCRA, there is a stigma that attaches to the product and any positive attempts to recycle and reuse the device is arguably hurt. For example, setting up various procedures for both solid and hazardous waste facilities in handling CRTs could lead to an attempt to avoid these responsibilities and result in illegal dumping. Further, the cost associated with correctly disposing or treating these devices may outweigh their environmental impact.

Second, since RCRA regulates hazardous materials from their generation to final disposal, it will be very hard to determine who should be ultimately responsible for properly recycling the CRTs. It is important to note that the CSI's approach attempted to alleviate this problem by limiting the groups that are to be regulated, but whether or not this will work is still unknown.

Third, there are still other options available to alleviate the disposal of CRTs in both solid and hazardous waste facilities. For example, there are various deposit and refund schemes which would provide an incentive for the private consumer to return or recycle the CRT. This approach could mimic other successful refund policies such as the return of car batteries when a new battery is bought, or the paying of a fee for the recycling of used oil when one gets the oil changed in their car.

On November 14, 2000, IBM, one of the largest computer manufacturers in the world, instituted a *PC Recycling Program*.[162] The program, initiated in Armonk, N.Y. will, "[f]or a fee of $29.99 ... accept all manner of PC parts through its IBM PC Recycling Service."[163] The program will then dispose of the parts "in an environmentally responsible way" or donate the usable equipment to organizations in need of computers.[164] Thus, it appears that corporations are beginning to recognize the need for the disposal of outdated CRTs. Regardless of the effectiveness of this program, it is clear that other available options warrant closer examination.

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[162]Recycling Personal Computers *available at* <http://www.cbsnews.com/now/story/0,1597,249303-412,00.shtml>

[163]*Id.*

[164]*Id.*

Even with these concerns in mind, some actions must still be taken under RCRA to effectuate a change in the disposal of CRTs. This is not to say that a comprehensive ban or declaring the devices to be hazardous is the only option, but perhaps establishing incentive plans or subsidies to compliant solid and hazardous waste facilities could be a step in the right direction. It is clear that any standard set forth under RCRA, even a minimum standard which can be increased by the states, is a level at which all states should be required to operate at or above.

The final concern involves the cost of recycling or reusing the CRTs. Even if recycling and reuse of CRTs is currently more expensive than discarding these units, we must keep in mind the future of our actions and the obvious environmental impacts our decisions will have on the solid waste facilities in the future. There is a finite space available to discard solid waste, and we must act now to preserve this space by reusing the CRTs since they are a viable, needed product in our society. Also, timing is everything. Now is the time to act because at no other point in our history has the potential for such devastating environmental impact via CRTs been so clear and present. The procrastination of our nation has forced us to act before people begin to look long and weary at that old computer in the basement and decide to pitch it in the garbage.[165]

Lastly, I borrow the simple proposition argued by *Wendell Berry* in his essay entitled *The Conservation of Nature and the Preservation of Humanity.*[166] He states that,

> [w]e who are now alive are living in this world; we are not dead, nor do we have another world to live in. There are, then, two laws that we had better take to be absolute. The first is that we cannot exempt ourselves from living in this world, then if we wish to live, we cannot exempt ourselves from using the world. [I]f we cannot exempt ourselves from use, then we must deal with the issues raised by use. And so the second law is that if we want to continue living, we cannot exempt use from care.[167]

We use the world in every way imaginable. With this use comes the responsibility to care for the actions we have taken. Even

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[165] *See supra* note 39.

[166] WENDELL BERRY, *The Conservation of Nature and the Preservation of Humanity*, *in* ANOTHER TURN OF THE CRANK, 64 (Counterpoint, 1995).

[167] *Id.* at 72-73.

if the recycling and reuse of CRTs is laborious and more expensive than shutting our eyes and throwing away millions of tons of useful materials, we should arguably take the proactive approach and limit the disposal of CRTs in solid and hazardous waste facilities.

While it would be nice to assume that all states would take action like Massachusetts, the practicality of the situation suggests we need intervention on a national level. Thus, the regulation of CRTs under RCRA on a limited basis is the best approach toward guaranteeing a decrease in the disposal of CRTs across the nation.